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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,326	04/14/2005	Shuuji Yano	052411	6463

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EXAMINER	
DUONG, THOI V	
ART UNIT	**PAPER NUMBER**
2871	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,326	YANO, SHUUJI	
	Examiner	Art Unit	
	Thoi V. Duong	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 4/14/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The preliminary amendment was filed on April 14, 2005.

Accordingly, claims 4-8 and 10 were amended, and new claims 11-21 were added. Currently, claims 1-21 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Yano et al. (Yano, US 2002/0149726 A1).

As shown in Fig. 1, Yano discloses an optical film 7 for a liquid crystal display obtained by laminating a polarizing plate 6 and a retardation film 4 so that an absorption axis of the polarizing plate and a slow axis of the retardation film are perpendicular to each other (paragraphs 12, 30 and 33),

wherein the polarizing plate 6 comprises a transparent protective film 2 and 3 on both surfaces of a polarizer 1 and if a direction on the transparent protective film in which an in-plane refractive index is maximized is X axis, a direction perpendicular to X axis is Y axis, a direction of the film thickness is Z axis; and refractive indexes at 550 nm in the respective axes directions are nx_1, ny_2 and nz_1; and a thickness of the film is d_1 (nm) by definition,

an in-plane retardation $Re_1 = (nx_1 - ny_1) \times d_1$ is 10 nm or less and

a thickness direction retardation $Rth = \{(nx_1 + ny_1)/2 - nz_1\} \times d_1$ is in the range of from 30 nm to 70 nm (paragraph 18), which meet the claimed range of from 30 nm to 100 nm, and

wherein if a direction on the retardation film in which an in-plane refractive index is maximized is X axis, a direction perpendicular to X axis is Y axis, a direction of the film thickness is Z axis; and refractive indexes at 550 nm in the respective axes directions are nx_2, ny_2 and nz_2; and a thickness of the film is d_2 (nm) by definition, the following relations are satisfied:

an Nz value represented by $Nz = (nx_2 - nz_2)/(nx_2 - ny_2)$ is in the range of from -0.2 to 0.2, which meets the claimed range of from 0.1 to 0.8, and

an in-plane retardation $Re_2 = (nx_2 - ny_2) \times d_2$ is in the range of from 80 to 200 nm (paragraph 21), which meets the claimed range of from 60 to 300 nm.

Re claim 2, the optical film of Yano is applied to an IPS mode liquid crystal display comprising a liquid crystal cell driven in IPS mode (paragraph 28).

Re claim 4, as shown in Fig. 1, Yano discloses a transmissive liquid crystal display comprising: a liquid crystal cell 8 containing a pair of substrates between which a liquid crystal layer is sandwiched, and driven in IPS mode; and a pair of polarizing plates disposed on both sides of the liquid crystal cells so that an absorption axis of the polarizing plates are perpendicular to each other, wherein at least one of the polarizing plates is the optical film 7, and the optical film is disposed so that an retardation film sides face the liquid crystal cell (paragraphs 28 and 29).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3 and 5-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al. (Yano, US 2002/0149726 A1) in view of Saito (US 6,285,430 B1).

Re claim 3, Yano discloses a transmissive display that is basically the same as that recited in claim 3 except for the liquid crystal cell driven in IPS mode having a retardation value in the range of from 230 to 360 nm at 550 nm when no voltage is applied.

As shown in Fig. 3, Saito discloses a transmissive display comprising a liquid crystal cell 30 driven in IPS mode having a retardation value in the range of from 312 nm to 624 nm (Delta n x d) when no voltage is applied (col. 4, lines 22-31 and col. 8, lines 18-30).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmissive display of Yano with the teaching of Saito by having the liquid crystal cell driven in IPS mode having a retardation value in the range of from 230 to 360 nm at 550 nm when no voltage is applied in order to realize the black color display to obtain a display of the high contrast over a broad viewing angle (col. 4, lines 27-31).

Re claim 11, as shown in Fig. 1, Yano discloses a transmissive liquid crystal display comprising: a liquid crystal cell 8 containing a pair of substrates between which a liquid crystal layer is sandwiched, and driven in IPS mode; and a pair of polarizing plates disposed on both sides of the liquid crystal cells so that an absorption axis of the polarizing plates are perpendicular to each other, wherein at least one of the polarizing plates is the optical film 7, and the optical film is disposed so that an retardation film sides face the liquid crystal cell (paragraphs 28 and 29).

Re claim 5, as shown in Fig. 1, Yano discloses a transmissive display that is basically the same as that recited in claim 5 except for an extraordinary refractive index direction of a liquid crystal material in the liquid crystal cell when no voltage is applied and an absorption axis of the polarizing plate on the light incidence side are parallel to each other.

As shown in Fig. 3, Saito discloses a transmissive display comprising a polarizing plate 32 disposed on a cell substrate 30 on the viewing side and a polarizing plate 34 on the light incidence side and an extraordinary refractive index direction 40 of a liquid crystal material (liquid crystal retardation axis) in the liquid crystal cell when no voltage is applied and an absorption axis 45 of the polarizing plate 34 on the light incidence side are parallel to each other.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmissive display of Yano with the teaching of Saito by having an extraordinary refractive index direction of a liquid crystal material in the liquid crystal cell when no voltage is applied and an absorption axis of

the polarizing plate on the light incidence side being parallel to each other in order to display a normal black at the shutoff of the electric field to obtain a display with high contrast over a broad viewing angle (col. 4, lines 27-31).

Re claims 6 and 13, Yano discloses that the optical film disposed on a cell substrate on the light incidence side (paragraph 28) and as shown in Fig. 6 of Saito, an extraordinary index direction 70 of a liquid crystal material in the liquid crystal cell when no voltage is applied and an absorption axis 75 of the polarizing plate 64 are perpendicular to each other (col. 7, lines 13-41).

Re claims 7, 14, 18 and 19, as shown in Fig. 1, Yano discloses that the optical film 7 comprises a polarizing plate 6 and a retardation film 4 so that an absorption axis of the polarizing plate and a slow axis of the retardation film are perpendicular to each other (paragraph 14).

Re claims 8, 12 and 15, Yano discloses that the optical film disposed on a cell substrate on the viewing side and the light incidence side (paragraph 28), and as shown in Fig. 3 of Saito, an extraordinary index direction 40 of a liquid crystal material in the liquid crystal cell 30 when no voltage is applied and an absorption axis 45 of the polarizing plate 34 on the light incidence side (top of Fig. 3) are parallel to each other.

Re claims 9 and 16, Yano discloses that the optical film comprises a polarizing plate and a retardation film so that an absorption axis of the polarizing plate and a slow axis of the retardation film are parallel to each other (paragraph 31). Also, as shown in Fig. 3 of Saito, the optical film comprises a polarizing plate 34 and a retardation film 36

so that an absorption axis 45 of the polarizing plate 34 and a slow axis 46 of the retardation film are parallel to each other.

Re claims 10, 17, 20 and 21, Yano also discloses that the optical films are disposed on opposite surfaces of the liquid crystal cell shown in Fig. 1, wherein an in-plane retardation Re_2 of the retardation film in the optical film disposed on the cell substrate on the light incidence side, which is 140 nm, is smaller than an in-plane retardation Re_2 of the retardation film in the optical film disposed on the cell substrate on the viewing side, which is 350 nm (paragraphs 29-34).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms, can be reached at (571) 272-1787.

Thoi V. Duong

02/17/2007